REMARKS

Applicant has amended the specification to designate the proper use of trade names and to correct spelling and grammatical errors, as requested by the Examiner. Claims 12, 14, 17, and 21 have been amended. Support for the amendments to claims 12 and 17 can be found, for example at Example Nos. 2 and 3, and in original claim 6. Support for the amendment to claim 21 can be found, for example, in original claim 5, and on page 8, ll. 8-30. Claim 14 has been amended to add a period. No new matter has been added via these amendments to the claims and specification. Currently, claims 12-15, 17, 19, 21, 22 and 24 are under examination.

Information Disclosure Statement (IDS)

Initially, with respect to the IDS and patent references BD (FR 1,477,048), BE (FR 2,091,516) and BI (FR 2,482,126), Applicant has submitted herewith as Exhibits A, B, and C, the English translation of FR 1,477,048 (Exhibit A); and the corresponding U.S. applications for FR 2,091,516 (U.S. 3,821,372) [Exhibit B] and FR 2,482,126 (U.S. 4,363,719) [Exhibit C]. With respect to the non-patent literature CG (Frank) and CH (Hager), Applicant is still waiting for the Hager reference to be translated and for the Frank reference to be shipped. These references will follow under separate cover.

Specification

The Patent Office has taken the position that Applicant must revise the entire specification and submit a substitute specification in proper idiomatic English. In addition, the Patent Office has taken the position that certain trade names are not properly capitalized or defined.

Applicant thanks the Examiner for pointing out several spelling and grammatical errors and improper uses of trade names. Accordingly, at the Examiner's request, we have attempted to resolve these issues. However, with regard to the

Examiner's broader statement regarding the readability of the application, Applicant respectfully traverses because, in applicant's opinion, the present specification complies with 37 C.F.R. 1.52 (a) and (b). Applicant submits that the specification, as now amended, is not so ambiguous that a person of ordinary skill in the art could not understand how to make and use the claimed invention. Accordingly, withdrawal is respectfully requested.

Claim Objections

The Patent Office has objected to claims 14 and 15 as being in improper dependent form for failing to further limit the subject matter of a previous claim. In addition, claim 14 has been objected to for missing a period. Applicant respectfully traverses.

Initially, claim 14 has been amended to add a period. Next, Applicant submits that claims 14 and 15 are drafted in proper dependent format. Claim 14, which depends from claim 13, does not recite "herb tea of plants or of fruits, or an infusion thereof" as found in claim 13. As such, claim 14 is of narrower scope than claim 13. Likewise, claim 15 only recites "black tea" and is of narrower scope than claim 14 from which it depends. Accordingly, Applicant requests withdrawal of the objection.

35 U.S.C. § 112, first paragraph

Claims 12-15, 17, 19, 21, 22, and 24 have been rejected for allegedly failing to comply with the enablement requirement. The Patent Office has taken the position that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant respectfully traverses.

The proper standard in determining whether an invention has been enabled requires a determination of whether the disclosure is sufficient to enable those skilled in the art to practice the claimed invention. Accordingly, the specification need not disclose what is well-known in the art. As acknowledged by the Examiner, there exists a high level of skill in the field of cosmetological and dermatological sciences, and as such, a skilled artisan reading the specification and the Examples could formulate any of the claimed compositions.

Specifically, Example 1 teaches a synthesis for preparing kombucha from the black tea plant. Together with the teachings in Examples 2-5, for example, a skilled artisan would be enabled to make and use the claimed compositions. In addition, the specification on pages 4-6 teaches some of the various types of kombucha-containing teas that may be used in arriving at the claimed compositions. For example, page 5, ll. 5-21 teaches that the kombucha can be manufactured from any tea of any kind and of any origin. A skilled artisan reading the specification could formulate the claimed products using the specification as a guide. In addition, Applicant teaches that tea of certain plants and/or fruits can be used as a basis for manufacturing kombucha. Note that Applicant is not claiming kombucha, per se. In view of the foregoing, Applicant respectfully requests withdrawal of the rejection.

35 U.S.C. § 112, second paragraph

Claims 12-15, 17, 19, 21, 22 and 24 have been rejected for allegedly being indefinite. The Patent Office has taken the position that the claims fail to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Office has rejected claim 12 as being indefinite because the upper range limit of kombucha at 100% (w/w) of the total weight of the composition would exclude

the carrier. Next, the Office has rejected claims 13 and 14 because "it is unclear as to the indication of the ingredients to which Applicant intends to direct the subject matter." In addition, claim 21 has been rejected because "it is unclear if Applicant means that the kombucha and cosmetically acceptable carrier are part of a formulation for skin care or if the composition itself is a formulation for skin care." Applicant respectfully traverses.

Initially with respect to claim 12, Applicant submits that claim 12 was drafted to read on, inter alia, a concentrated raw material product comprising kombucha, a preservative, and a carrier. Applicant has recited an upper range of 100% (w/w) of kombucha to protect the raw concentrate. Both the case law and M.P.E.P. make clear that a claim reciting a composition having a theoretical content greater than 100% is not indefinite. See In re Kroekel, 183 U.S.P.Q. 610 (C.C.P.A. 1974); see M.P.E.P. § 2173.05(c). In In re Kroekel, the court held that a composition claiming to have a theoretical content greater than 100% (i.e., 20-80% of A, 20-80% of B, and 1-25% of C) was not indefinite simply because the claims may be read in theory to include compositions that are impossible in fact to formulate. The court held that subject matter which cannot exist in fact can neither anticipate nor infringe a claim, and thus the claim was not invalid. Id. at 613. Likewise, in this case, the fact that the claim recites a theoretical range of kombucha in excess of 100% is not grounds for a rejection. Accordingly, withdrawal of the rejection is requested.

Moreover, Applicant has drafted claims to read on, inter alia, diluted raw materials and consumer end products having kombucha present in an amount of between 0.01% (w/w) and 20% (w/w) of the total weight of said composition, which are formulated by diluting a concentrate into formulations as in

claims 17 and 24, for example. This claim clearly cannot suffer from these same concerns.

With respect to claims 13 and 14, whether or not a claim is indefinite depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification. The fact that claim language may not be precise, does not automatically render the claim indefinite. Seattle Box Co., v. Industrial Crating & Packing, Inc., 221 U.S.P.Q. 568 (Fed. Cir. 1984). Likewise, breadth of a claim is not to be equated with indefiniteness. In re Miller, 169 U.S.P.Q. 597 (C.C.P.A. 1971); M.P.E.P. § 2173.04. The M.P.E.P. makes clear that "[i]f the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112." Id. at § 2173.04. Here, Applicant has invented a topical formulation comprising kombucha and methods of its making and use. Applicant teaches throughout the specification (e.g., page 5, ll. 5-21) that the kombucha can be manufactured from any tea of any kind and of any origin, and even provides an example of the manufacturing/fermentation process for producing kombucha in Example No. 1. In addition, Applicant teaches that certain herb teas of certain plants and/or fruits can be used as a basis for manufacturing kombucha. A skilled artisan reading the specification along with the examples would comprehend that any kombucha-containing source could be used to manufacture kombucha in accordance with the invention. Again, kombucha is known per se and is not the invention. As such, those of skill in the art will know that amongst the possible sources of kombucha are the teas which are preferred, as emphasized by the dependent claims. Therefore, in this case where Applicant has pointed out and distinctly claimed the subject matter of the invention in no uncertain terms, a skilled artisan reading the

specification would understand the metes and bounds of the claims. Accordingly, withdrawal of the rejection is requested.

With respect to claim 21, Applicant has amended the claim to indicate that the composition is "formulated" for skin care, hair care, etc. A skilled artisan would understand that the kombucha and the carrier were part of a formulation for skin care, hair care, etc. Accordingly, withdrawal of the rejection is respectfully requested.

35 U.S.C. § 102

Claims 12, 17, 21 and 24 have been rejected for allegedly being anticipated. The Office's position is that the reference http://web.archive.org/web/*/ http://users.bestweb.net/~om/kmi/skin-hair.html ("the KMI reference") anticipates claims 12, 17, 21 and 24. Applicant respectfully traverses because the claims as amended and indeed without amendment are not anticipated.

Contrary to the teachings in the KMI reference, all of the claims now require that the composition include a preservative, which preserves the cosmetic balance of the compounds present in the composition. The KMI reference teaches away from the use of any preservatives whatsoever. In fact, the KMI reference teaches "100% organic" and "completely natural" products. The KMI reference teaches that "[t]he Kombucha Skin Toner will keep for a week or so, at room temperature-with cap open to allow excess carbonation to escape. After that, it is better to replace it with a new batch."

In contrast, Applicant found the presence of a preservative to be beneficial. The claims now recite a preservative, to emphasize these advantages. As such, the claims cannot be anticipated.

Additionally, the KMI reference is not an enabling reference and, therefore, cannot anticipate the claimed invention. "In determining that quantum of prior art disclosure

which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure'... ." In re Hoeksema, 158 U.S.P.Q. 596 (C.C.P.A. 1968). The KMI reference does not provide any information as to how much kombucha to use (e.g., the concentration of the tea) and does not provide any test data to demonstrate whether the composition even works. Thus, the reference cannot be novelty-destroying.

Furthermore, claim 17, for example, is drawn to a diluted raw material and commercial-style products having kombucha present in an amount between 0.01% (w/w) and 20% (w/w) of the total weight of said composition. Nothing in the KMI reference teaches any concentrations of kombucha whatsoever. Therefore, the composition of claim 17 cannot be anticipated.

35 U.S.C. § 103

Claims 12-15, 17, 19, 21, 22 and 24 have been rejected for allegedly being obvious over the KMI reference in view of several combinations of references including Blanc, a publication in Medicinal Food News No. 16 (Oct. 1996)("the Food News publication"); http://web.archive.org/web/*/http://www.dr-lautenschlaeger.de/liposomes.html, 'Liposomes: Innovative concepts lead to success' ("the Liposomes reference"); http://web.archive.org/web*/http://www.erespa.com/nightcrm.htm, Elizabeth Renee Esthetics: natural skincare and day spa' ("the Elizabeth Renee publication"); U.S. Patent 5,962,015 to Delrieu et al. ("the '015 patent"); and Forster et al., 'Lipid/Surfactant Compounds as a New Tool to Optimize Skin-Care Properties of Personal-Cleansing Products' ("Forster"). Applicant respectfully traverses the rejection because, based on a review of the references, none of the combinations of the cited art teach the new claimed compositions including a preservative.

Applicant has formulated topical compositions comprising kombucha and a cosmetically acceptable carrier mixed with said kombucha and a preservative. The preservative blocks fermentation to preserve the chemical balance of the composition, for example, by blocking microbial growth or undesirable chemical changes which can increase the acidity of the kombucha composition. The claims are drawn to both concentrated products (e.g., claim 12), which may be sold to customers for formulating consumer products, and to the consumer (i.e., commercial-style) product itself (e.g., claim 17), which is used by consumers. Claim 17, for example, is drawn to a commercial-style product having kombucha present in an amount between 0.01% (w/w) and 20% (w/w) of the total weight of said composition, a range not recited in any of the patents alone or in combination. Claim 17 also requires that a preservative be present for preserving the cosmetic efficacy of the composition.

Putting aside for now the fact that the principal reference—the KMI reference—is not enabling, its combination with the secondary references does nothing at all to detract from the clear teaching away from Applicant's claimed invention. As discussed earlier, the KMI reference actually teaches away from the addition of a preservative to the mixture. In addition, our review of the secondary references does not reveal that any of them are suggesting the use of any preservatives at all, particularly in this type of combination. Therefore, even if the combination of these references were proper, the combinations would still fail to render obvious Applicant's claimed invention. Accordingly, in view of the foregoing, withdrawal of the rejection is requested.

Should the Examiner have any questions with regard to the foregoing, the Examiner should contact Applicant's attorney at (908) 654-5000 in order to overcome any additional objections which she might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: December 21, 2007

Respectfully submitted,

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PATENT

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Internationale classification **C 07 c // A 61 k**

New surface-active and nonionic agents and their preparation process. (Invention: Grégoire KALOPISSIS and Guy VANLERBERGUE)

Business Corporation: L'OREAL residing in France (Seine).
Applied: 21 April 1996 in Paris
Granted: 6 March 1967.

There are quite a number of known nonionic surface-active agents the composition and properties of which are quite varied.

The known products made from the conventional raw materials do not have simultaneously all the characteristics which are desired for certain purposes.

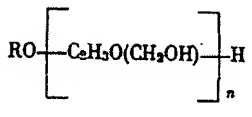
For instance, the best detergents and foaming agents among those monoethers of polyethylene glycol which comprise a lipophile chain having at least 8 carbon atoms are generally the most irritating to the mucous membranes. Moreover, when mixed with cationic surface-active agents the degree of irritation increases synergistically.

The derivatives of the polyols and the sugars, especially their esters, have been considered most useful because they are not irritating. They have, however, certain disadvantages. In particular, the non-selective character of the reactions used in their preparation results in the formation of a mixture of constituents having one or more lipophile chains per molecule. When these products are to be used for applications for which solubility in water is a pre-requisite, they must therefore be onerous purified.

The hydrosolubility of these compounds may be improved by adding hydrophilic substituents to the carbon chain, or by adding ethylene oxide to the free hydroxyl groups. However, such compounds are not usually very good foaming agents, even when they comprise a medium length hydrocarbon chain. They are consequently used mainly as emulsifiers.

It is an object of the present invention to produce from raw materials non-ionic surface-active agents which are stable, very hydrophilic, non-irritating, non-toxic and which may be used as emulsifiers, foaming agents, detergents, or wetting agents.

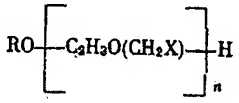
According to the present invention there is provided a process for preparing new surface-activnonionic compounds of the formula (I):



in which R is a lipophilic chain which can be a linear or branched alkyle radical, saturated or not comprising a chain of 8 to 22 carbon atoms or alkylaryl radical with a linear or branched alkyle chain, and n is a number lower or equal to 10, essentially characterized by this fact that one makes act by reaction polyaddition on a hydroxylated compound of formula ROH, R having the meaning indicated above, n molecules of glycerol epihalohydrin and that we carry out hydroxylation of the product obtained by means of salt of carboxylic acid.

The present invention also has as an aim the new industrial product which the non-ionic surface active agents constitute of formula (I) obtained by the above-mentioned process.

The present invention has finally as an aim, as new industrial product, the intermediate products which one obtains during the process preparation above-mentioned, after the reaction of polyaddition and before the reaction of hydroxy lation, these compounds answering the formula (II):



in which R with the significance indicated above, n is a number higher than 2 and less than or equal to 10 and X represents a halogen.

During the reaction of poly-addition who forms the first phase of the process of the preparation according to the invention, a mixture of products is formed answering formula (II), but in these products the number of molecules of glycerol epihalohydrin fixed may be greater or less than the statistical average value corresponding to the number of molecules of glycerol epihalohydrin supplied per molecule of the hydroxylated compound. It follows that it is possible to obtain a mixture of compounds having hydrophilic chains of varying lengths depending on the value of the number n in formula (I), the statistical average n value corresponding to the number of molecules of glycerol epihalohydrin supplied per molecule of hydroxylated compound.

But the important fact which must be emphasized and which is one of the advantages of the present invention, is that compounds having only one lipophilic chain per hydrophilic chain are produced.
Besides, it is advisable to clarify that the process of preparation according to the invention allows to adjust at will the hydrophilic character and the character lipophile of the obtained product by choosing the value of the number n: when n is equal at least to the third the number of atoms of carbon of the lipophilic chain, we obtain soluble detergents in the water. Besides, when the lipophilic chain contains 10-14 carbon atoms the products make good foaming agents, while those in which the lipophilic chain contains more than 14 carbon atoms are useful as emulsifiers.

In a favorite mode of manufacturing process, the reaction of polyaddition of glycerol epihalohydrin is carried out in the presence of an acid catalyst such as boron trifluoride, the satanic chloride or antimony pentachloride, in a temperature comprised between 25 °C and 160 °C and rather between 60 and 120 °C in case we use the trifluorure of boron in the proportion from 1 to 2 % with regard to the total reactional mass.

The hydroxylation which forms the second phase of the process is carried out by taking into account the fact that the preparation of the fatty alcohols from the halogenated derivatives is generally rather difficult, that the substitution is often incomplete, and that the mineral salts in which the halogen of the halogenated derivative has been fixed have an adverse effect on the solubility and make it laborious to separate the product at the end of the reaction. The favourite hydroxylation process is based on the reaction of the halogenated derivative of formula (II) with a alkaline metal salt of carboxylic acid preferably carried out in the presence of a solvent which ensures both the miscibility of the reacting components and the easy separation of the halide formed.

The alkaline metal salt of carboxylic acid which is used in this hydroxylation step may advantageously be an alkali metal acetate, used in stoichiometric proportions, or slightly in excess thereof (10 to 15% at most) with respect to the halogenated compounds involved in the reaction.

It has been found that the results remain satisfactory regardless of whether the acetates are added all at once at the beginning of the hydroxylation reaction or little by little as the reaction proceeds.

The acetates may be regenerated "in situ" from esters formed in the course of the reaction, for example, by adding an aqueous solution of an alkaline hydroxide, while instantaneously evaporating the water.

In this method, preferred solvents for use in the process effect a progressive alcoholysis of the esters formed in an intermediate step. Among the solvents having the requisite properties we can quoted propylene glycol, dipropylene glycol, diethylene glycol and its ether, ethylene glycol, hexylene glycol, 2-butoxyethanol and an ether of diethylene glycol, the boiling points of which are high enough to make it unnecessary to use an autoclave. The amount of solvent during the hydroxylation phase must represent at least 50% of the weight of polyhalogenated ether which will be hydroxilated and, preferably from 100 to 400 % of this weight.
The hydroxylation reaction is carried out at a temperature high enough so that the time required for the reaction is reasonable and low enough to avoid degradation of the products formed. A temperature of 150 °C to 200 °C is generally suitable for the first step, a temperature between 180 °C and 190 °C being preferred. More than 90% hydroxylation is obtained under these conditions.

Finally, in order to avoid colouring the products obtained during the hydroxylation, it suffices to add reducing agents such as sodium hypophosphite or alkali metal borohydrides.

Among the mixtures of compounds according to formula (I) those which are hydrosoluble detergents and foaming agents may advantageously be used for cosmetic purposes, and especially for shampooing the hair. The novel mixtures of compounds obtained, in a 5% aqueous solution, are quite harmless and freely tolerated by the mucous membrane of the eye. This property has been clearly established by tests carried out on the eyes of a group of rabbits using the methods described by J.H. Draize, G. Woodard and H.O. Calvery in the "Journal of Pharmacology" 1944, Vol. 82, page 377-389 and by J.H. Draize and E.A. Kelly in "Proceedings of Scientific Section", 17, 1-4 (1952). No lesions of any nature appeared in the mucous membranes of the eyes of rabbits after such tests.

Moreover, the mixtures of compounds when associated with cationic surface-active agents, cause no synergistic irritation. On the contrary, they decrease the irritation caused by certain quaternary ammonium halides.

The present invention also provides cosmetics compositions, especially shampoos and emulsifiers (cleansing lotions), comprising at least one mixture of compounds of formula I.

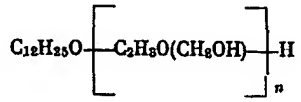
The cosmetic compositions useful as shampoo are rather aqueous solutions containing approximately from 1 % to 25 % of compounds of formula (I). Conventional additives such as thickening agents and/or other ionic or non-ionic surface-active agents may be added to these compositions. When hair is washed with such solutions it becomes shiny, soft and non-electric. It has, moreover, been found that the cosmetics compositions of the present invention may be used as carriers for hair dyes.

Accordingly, the present invention also provides a method of treating hair which comprises applying thereto a mixture of compounds of formula I or polyhydroxylated ethers isolated therefrom.

The following Examples further illustrate the present invention.

EXAMPLE 1

Preparation of the mixture of compound:



in which n has a statistical average value of about 4.

First Step: polyaddition reaction

186 g. of lauryl alcohol and 1.5 ml. of an acetic acid/boron fluoride complex containing 36% by weight BF3 are introduced into a 1 litre flask provided with a stirrer, a thermometer and a cooling coil. The mixture is heated to 75°C and 389 g.of glycerol epichlorohydrin are added drop by drop over a period of 75 minutes. The reaction is exothermic and the temperature stays between 75 and 80°C. When the addition is completed, the temperature of the reaction mixture is permitted to return to room temperature.
The resulting polyoxychloropropylated lauryl alcohol is a clear yellow oil which is insoluble in water. Measurement of the epoxide function shows that the epichlorohydride has completely reacted.

Second step: Hydroxylation reaction

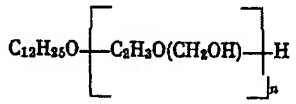
144 g. of potassium acetate are dissolved in 360 gof dipropylene glycol and the resulting solution is heated to 180 °C under a nitrogen atmosphere.
181 g. of the product obtained in the first step is added, with stirring, over a period of 30 minutes.
The mixture is then heated for 2 hours and 30 minutes at between 180 and 190 °C. After cooling the mixture to room temperature, the potassium chloride formed is separated by filtration, in a yield of about 96%.
The partially acetylated dipropylene glycol is evaporated under vacuum from the filtrate and a syrupy product soluble in water is thus isolated.
The saponification index (of both the end product and the recovered solvent) shows that the polyhydroxylated polyether is 85% deacetylated.
The product is then dissolved in 500 ml of absolute alcohol. This solution is coloured with vegetable black and 300 mg. of sodium ethylate dissolved in 10 ml. of absolute alcohol is added. The resulting mixture is left at room temperature for 6 hours, which permits de-acetylation of the product. After evaporation of the ethyl acetate and the alcohol, 147 g. of an end product having the following characteristics are recovered:

Saponification index	0
Hydroxyl index	546
Iodine index	1

Percentage of potassium acetate 7%
This compound is in the form of a syrupy liquid which is readily soluble in water. It has excellent foaming characteristics and is well tolerated by the mucous membranes of the eye.

EXAMPLE 2

Preparation of the mixture of compound:



in which n has a statistical average value of about 4.

First Step: polyaddition reaction of glycerol epichlorohydrin on lauryl alcohol according to proceeding as in Example 1

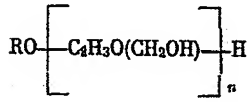
Second step: Hydroxylation reaction

Hydroxylation is effected in the following manner:
0.84 mols of crystallized sodium acetate in the form of the trihydrate and 0.11 g. of sodium hypophosphite are dissolved in 115 g of diethylene glycol. The solution is heated under a nitrogen

atmosphere. When the temperature reaches 120°C the water begins to distill off. At 140-145°C, the mixture can be seen to gel.
115 g. of the mixture of polyoxychloropropylene lauryl alcohols are added within 20 minutes, while stirring and maintaining the temperature between 140 and 145°C. The reaction mixture again becomes fluid, and is heated at 180°C to complete the evaporation of the water.
The reaction is then continued at 180-185°C for three hours. Under these conditions from 95.5 to 96% of the sodium acetate involved is consumed. After cooling to 80°C, the solution is filtered and the sodium chloride washed with 29 g of diethylene glycol at 80°C.
The diethylene glycol is evaporated from the filtrate under vacuum at 180°C. 107 g. of a product having a saponification index of 64, and 150 g. of partially acetylated diethylene glycol having a saponification index of 244 are recovered.
The de-acetylation of the polyhydroxylpolyether is completed by saponification with an aqueous 13% solution of sodium hydroxide at a temperature of 40-45°C. This step takes an hour and a half.

EXAMPLE 3

Preparation of the mixture of compound having the formula:



(in which R represents a linear aliphatic chain having 12 to 14 carbon atoms, and n has a statistical average value of about 4).

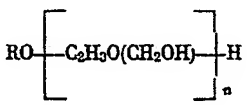
First Step: polyaddition reaction
In the same way as described in Example 1, 370 g. of glycerol epichlorohydrin are reacted with 200 g. of mixture of fatty alcohols of copra containing about 70% by weight of dodecanol and about 30% by weight of tetradecanol.
Polychlorinated polyether is obtained.

Second step: Hydroxylation reaction

114g of the polychlorinated polyether obtained is dissolved in 200g of dipropylene glycol.
The solution is heated to 180°C, and 80 g. of potassium acetate are added little by little.
After 4 hours and a half at 180°C,96 to 97% of the acetate introduced has been consumed. The potassium chloride thus formed is separated, the solvent is evaporated and, as indicated in Example 1, the product is dissolved in ethyl alcohol. The ethyl acetate and alcohol are then eliminated and 100.5 g of a syrupy product is recovered. This product is soluble in water and corresponds to the formula given at the beginning of this Example.

EXAMPLE 4

Preparation of the mixture of compound having the formula:



(in which R represents a linear aliphatic chain having 12 to 14 carbon atoms, and n has a statistical average value of about 5.5).

First Step: polyaddition reaction

In the same way as described in Example 1, 509g of glycerol epichlorohydrin are reacted with 194 g. of mixture of fatty alcohols containing about 70% by weight of dodecanol and about 30% by weight of

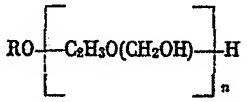
tetradecanol. This reaction is carried out in the presence of 1.5 ml of an acetic acid boron fluoride complex with 36 % of BF3.
Chlorinated polyether is obtained.

Second step: Hydroxylation reaction

70g of the polychlorinated polyether obtained in the first phase described above is dissolve with 735g of 2-butoxy-ethanol. The solution is heated to 170°C, and 55g of anhydrous potassium acetate are then introduced little by little.
After reacting for 7 hours at 170°C, the reaction mixture is permitted to return to the ambient temperature. 94% of the quantity of potassium chloride which should theoretically have been formed is separated by filtration.
After evaporation of the solvent, 67.5g of a product are recovered. This product is then de-acetylated with ethanol, in the presence of potash, which acts as a catalyst. The alcohol and ethyl acetate are then eliminated.
The resulting polyhydroxyl ether mixture is soluble in water and is a good foaming detergent.

EXAMPLE 5

Preparation of the mixture of compound:



(in which R is an alkyl radical having 16 to 18 carbon atoms and n has a statistical average value of 6).

First Step: polyaddition reaction

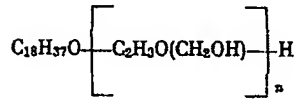
The method of operation is essentially that of Example 1. 416 g. of glycerol epichlorohydrin are reacted at between 70 and 80°C with 188g of a mixture of cetyl alcohol and stearyl alcohol in the presence of 0.87% by weight of boron fluoride, yielding the mixture of polychlorinated polyethers.

Second step: Hydroxylation reaction

156 g of the mixture obtained are mixed with 144.5 g of potassium acetate dissolved in hexylene glycol at a temperature between 180 and 195°C. This temperature is maintained for three hours. The reaction mixture is then cooled at 25°C. and the potassium chloride formed is separated by filtration. The hexylene glycol is then evaporated under a pressure of 15-20 mm of mercury while 1 progressively increasing the temperature to 180°C. The product is de-acetylated by ethanolysis, with sodium ethylate as the catalyst. The ethyl acetate and the alcohol are then eliminated and 132 g of a pasty product is recovered. This product is soluble in water to 75°C.

EXAMPLE 6

Preparation of the mixture of compound:



in which n has a statistical average value of 10.

First Step: polyaddition reaction

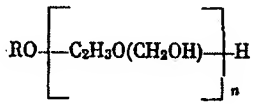
In the same general way as in Example 1, 462.5 g. of glycerol epichlorohydrin are reacted with 143.5 g. of stearyl alcohol in the presence of 0.11% by weight of boron fluoride.
The reaction mixture is maintained for four hours between 60 and 65°C and then heated to 120°C for five minutes. It is then stirred while being permitted to return to the ambient temperature.
The result is the mixture of polychlorinated polyethers.

Second step: Hydroxylation reaction

242.5g of the mixture obtained in the first phase are heated with 200g of potassium acetate, using 300 g. of dipropylene glycol as the solvent. The reaction is continued for three hours at between 185 and 190°C. The chloride ion and the potassium acetate are then measured to determine the percentage of transformation, which is found to be between 97 and 98%. The resulting product is isolated and reacted with ethanol as in Example 1. After the alcohol and ethyl acetate have been evaporated, the process yields 177g of a solid product which, in aqueous solution, is slightly opalescent at 25°C and limpid at 60°C.

EXAMPLE 7

Preparation of the mixture of compound:



(in which n has a statistical average value of 5 and R is an alkyl radical containing 11 to 16 carbon atoms in a branched chain, said radical having been derived from an alcohol obtained by the "Oxo" synthesis).

First Step: polyaddition reaction

Using the method of Example 1, 231.2g of glycerol epichlorohydrin are reacted with 105.5 g of a mixture of fatty alcohols obtained by "Oxo" synthesis, the branched hydrocarbon contained having 11 to 16 carbon atoms. This reaction is carried out with 0.75 ml of acetic complex of boron fluoride.
A mixture of polyoxychloropropylen alcohol is obtained. This product is insoluble in water and its color is brown.

Second step: Hydroxylation reaction

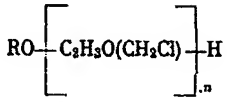
134.7g of the mixture obtained are dissolved in 876g of dipropylene glycol, then potassium borohydride is added to the solution. The mixture is heated with stirring whereupon it loses colour rapidly. 100 g. of potassium acetate are then added, followed by 50 g of dipropylene glycol. After 3 hours of reaction at 175-180°C, 93.5% of the potassium acetate supplied has been consumed.
The potassium chloride is separated by filtration, after which the solvent is evaporated by progressively raising the temperature to 180°C under reduced pressure (15 to 20 mm of mercury). The resulting product is then subjected to ethanolysis in the presence of potash which has been purified in alcohol.
The ethyl acetate and alcohol are then eliminated and 135.5g of a syrupy liquid are recovered. This liquid dissolves easily in water and may be used as a foaming detergent.

EXAMPLE 8

First Step: polyaddition reaction

Glycerol epichlorohydrin is reacted with commercial oleyl alcohol having a hydroxyl index of 207 and an iodine index of 88.

This yields mixtures of polychlorinated mono-alkyl-ethers corresponding to the formula:



in which R is the radical derived from the alcohol used as the raw material and n has the value 2, 4, 5 or 6.
This reaction is carried out at about 60°C, using, as catalyst, an acetic acid/boron fluoride complex in the ratio of about 0.25 ml per g of reaction mass.

Second step: Hydroxylation reaction

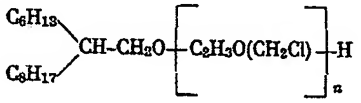
The polychlorinated mono-alkyl-ether mixture corresponding to the formula (I) is treated with a stoichiometric quantity of potassium acetate at a temperature of about 180-185 °C, for 5 hours. The solvent used in this reaction is dipropylene glycol. The quantity of solvent is equal in weight to that of the chlorinated ether and the potassium acetate combined.
The products obtained at the end of the hydroxylation step have properties which are summarized in the following Table:

n value	Aspect	
2	Yellow oil	Dispersible in water
4	Yellowish paste	Soluble in water with difficulty
5	Clear brown paste	Soluble in a hydroalcoholic medium containing 10% alcohol
6	Clear brown paste	Soluble in water

EXAMPLE 9

First Step: polyaddition reaction

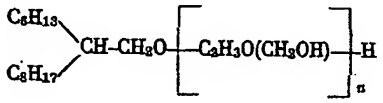
By reaction in 60°C of 343 g of hexadecylic alcohol (marketed by the Company Esso) with 180g of glycerol epichlorohydrin, in the presence of 1,25 ml of an acetic boron fluoride complex. A mixture of polychlorinated ethers is thus obtained of formula:



in which n has a statistical average value of 1,5.

Second step: Hydroxylation reaction

We process this polychlorinated ether by the potassium acetate in 5 % excess with regard to the stoechiometric quantity. After five hours of reaction in 180°C, we filter the obtained salt and we evaporate the dipropyleneglycol used as solvent. The rough material is then saponified with some aqueous soda in 48 %, in weight, then washed in the boiling water, to eliminate electrolytes, and dried. The "hexadecylic" monoether of formula :

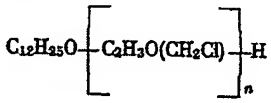


in which n has a statistical average value of 1,5, is an almost colorless oil which is dispersible in the water. The product can replace advantageously the oleic derivative having the same hydrophilic chain. Because it does not contain ethylenic bound, it is not subject to the rancidity.

EXAMPLE 10

First Step: polyaddition reaction

We make react to 85-90°C, 372 g lauric alcohol (product known under the trademark of Alfol-12) with 278,5g glycerol epichlorohydrin in the presence of 1,65 ml of an acetic boron fluoride complex.
We obtain a laurylether having the formula:



in which n has a statistical average value of 1,5.

Second step: Hydroxylation reaction

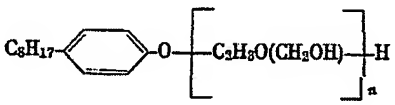
162g of polychlorinated ethers prepared in the first phase react with 74g of potassium acetate in 220 g of butoxy-2ethanol in 170°C during 3 hours an half. The obtained rough material is then saponified with 95 g of soda in 30% in a temperature of 50 in 60 °C. We add to the reactional mixture 250 ml of water. By settling we separate the aqueous phase containing electrolytes. We wash the organic phase twice with an aqueous solution of sodium sulphate 15 %, beforehand warmed in 70°C.

Third step: preparation of sulphated derivative

We mix 74 g some polyhydroxyilated ether, prepared in the second phase, with 6 g of urea and we warm this mixture in 90°C. We add then 25 g of sulfamic acid. The mix is strongly shaken with a turbo-agitator and warmed on bath of oil until 120°C. The reaction is then strongly exothermic and, although we interrupt the heating, the temperature amounts to 140°C. The product of sulfatation obtained dissolves easily in the water and constitutes a good foaming detergent.

EXAMPLE 11

Preparation of the mixture of compound:



in which n has a statistical average value of about 6.

First Step: polyaddition reaction

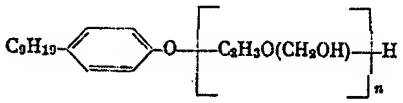
2.5 ml. of a phenolic boron fluoride compound containing 26% by weight BF_3, is added to 167 grams of melted octylphenol. 416 grams of glycerol epichlorohydrin are then added, drop by drop, while stirring. The reaction begins at 95°C, after which the temperature is lowered to 75°C-80°C when the mixture remains liquid at the latter temperature.
The epichlorohydrin is added over 60 minutes, 0.5 ml of the phenolic boron fluoride compound is then added and the reaction terminated while continuing to stir the mixture.
No loss of weight due to evaporation of volatile products occurs while the mixture is being heated in a water-bath under a vacuum, produced by a water pump. The mixture of polychlorinated ethers thus obtained is in the form of a viscous oil.

Second step: Hydroxylation reaction

300g of potassium acetate are dissolved in 700g of dipropyleneglycol and the resulting solution heated to 180°C under a nitrogen atmosphere.
398g of the product obtained in the first phase are then added over 170 minutes while stirring the mixture.
The mixture is then heated for 100 minutes at between 180°C. and 190°C, cooled to room temperature, and the potassium chloride formed therein is filtered off.
The partially acetylated dipropylene glycol is evaporated from the filtrate under vacuum.
The product thus obtained is dissolved in 750 ml of absolute alcohol; the solution is coloured with vegetable black, and 30 ml of alcohol-purified N/2 potash are added. The resulting mixture is left at room temperature for 4 hours and 30 minutes, thus de-acetylating the product. After evaporation of the ethyl acetate and the alcohol, 335g of a product corresponding to the formula at the beginning of this Example are obtained as a viscous substance which is soluble in water. This substance has good foaming properties and does not irritate the mucous membrane of the eye.

EXAMPLE 12

Preparation of the mixture of compound:



in which n has a statistical average value of 6.

First Step: polyaddition reaction

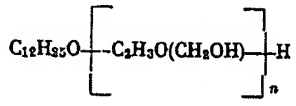
Following the method described in Example 1, 416 grams of glycerol epichlorohydrin react with 172 g of industrial nonyl-phenol.
This yields the mixture of polychlorinated polyethers.

Second step: Hydroxylation reaction

300 g. of potassium acetate are dissolved in 700 g. of dipropylene glycol. The solution is heated to 180°C and 392g of the product obtained in the first phase are added, little by little. After 4 hours at 180°C, about 95% of the theoretical quantity of potassium chloride is formed and is then separated out. The solvent is then evaporated and the ethyl acetate and alcohol eliminated, to yield 345 g. of a viscous product which is soluble in water, and which corresponds to the formula given at the beginning of this Example.

EXAMPLE 13

An aqueous solution having the following composition is prepared:



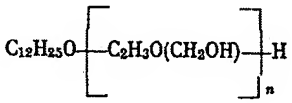
(n having a statistical average value of 4)	10g
Cethyl trimethyl-ammonium bromide	3g
Lactic acid q.s.p	pH5
Water,q.s.p	100g

10 cm3 of this composition are applied to hair which has first been dampened and the hair is then massaged energetically to emulsify all the dirt, and rinsed copiously with water 8 to 10 cm3 more of

the product are then applied, producing an abundant foam; the hair is again rinsed, leaving it shiny, soft, and non-electric.

EXAMPLE 14

An aqueous solution having the following composition is prepared:



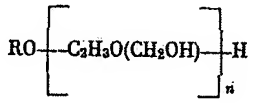
(n having a statistical average value of 4)	15g
Diethanolamide of the acids derived from copra	1g
Polyethylene glycol (molecular weight 5,000,000)	0.1g
Water, q.s.p.	100g

The pH of the solution is 7.5.

10 cm3 of this composition are applied to hair which has first been dampened and the hair is then massaged energetically to emulsify all the dirt, and rinsed copiously with water 8 to 10 cm3 more of the product are then applied, producing an abundant foam; the hair is again rinsed, leaving it shiny, soft, and non-electric.

EXAMPLE 15

An aqueous solution having the following composition is prepared:



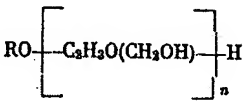
(in which R is an alkyl radical having 12 to 14 carbon atoms and n has a statistical average value of 4)	5 g
Sodium salt of ethoxy alkyl sulphate	7 g
Diethanolamide of the acids derived from copra	2 g.
Water, q.s.p.	100.g

The pH of the solution is 7.

10 cm3 of this composition are applied to hair which has first been dampened and the head is massaged energetically to emulsify all the dirt, after which it is rinsed copiously with water. 8 to 10 cm3 more of the product are then applied, yielding an abundant foam. The hair is again rinsed and is left shiny, soft and non-electric.

EXAMPLE 16

An emulsion having the following composition is prepared:

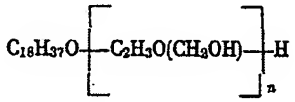


(in which R is an alkyl radical having 16 to 18 carbon atoms and n has a statistical average value of 6)	8 g.
Paraffin oil	32 g.
Water	60 g.

This emulsion is of the oil in water type and is especially fine. Without the addition of any other emulsifier it constitutes an excellent cleansing lotion.

EXAMPLE 17

An emulsion having the following composition is prepared:

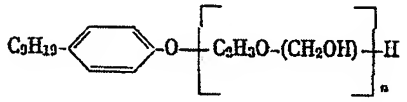


(in which n has a statistical average value of 10)	8 g.
Glycerol monostearate	4 g.
Paraffin oil	28 g.
Water	60 g.

The mixture identified in the first line of this list is insoluble when heated in oil. It is brought into solution by the glycerol monostearate, thereby producing a very fine emulsion which makes an excellent cleansing lotion.

EXAMPLE 18

An aqueous solution having the following composition is prepared:



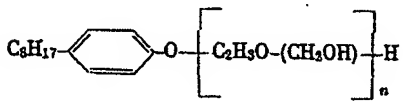
	15 g
in which n has a statistical average value of 6	15 g.
Water	100 g.

The pH of the solution is 7.

10cm3 of this solution are applied to a head of hair which has first been dampened. The head is then vigorously massaged, and rinsed copiously with water. A second application of 8 to 10 cm3 of the product follows and produces an abundant foam. The hair is again rinsed, dried, and is left bright, soft and nonelectric.

EXAMPLE 19

An aqueous solution having the following composition is prepared:



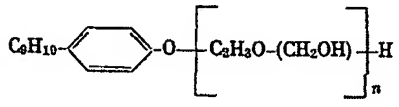
	15 g
in which n has a statistical average value of 6	
Water, q.s.p	100 g.

The pH of the solution is 7.

10 cm3 of this solution are applied to a head of hair which has first been dampened.
The head is then massaged vigorously and rinsed copiously with water. A second application of 8 to 10 cm3 of the product follows and produces an abundant foam. The hair is again rinsed, dried, and is left shiny, soft and non-electric.

EXAMPLE 20

An aqueous solution having the following composition is prepared:



15 g

(in which n has a statistical average value of 6)

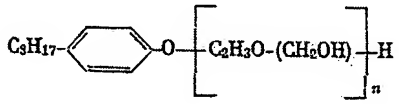
Lauric diethanolamide	2g
Carboxymethylcellulose	0.2g
Water, q.s.p.	100g

The pH of the solution is 7.5.

10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is then vigorously massaged and rinsed copiously with water. A second application of 8 to 10 cm3 of the product follows and produces an abundant foam. The hair is again rinsed, dried, and is left shiny, soft, and nonelectric.

EXAMPLE 21

An aqueous solution having the following composition is prepared:
An aqueous solution having the following composition is prepared:



15 g

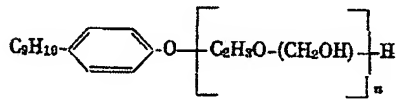
(in which n has a statistical average value of 6)

Lauric diethanolamide	2g
Carboxymethylcellulose	0.2g
Water, q.s.p.	100g

The pH of the solution is 7.5.
10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is then vigorously massaged and rinsed copiously with water. A second application of 8 to 10 cm3 of the product follows and produces an abundant foam. The hair is again rinsed, dried, and is left shiny, soft, and nonelectric.

EXAMPLE 22

An aqueous solution having the following composition is prepared:



7 g

(in which n has a statistical average value of 6)

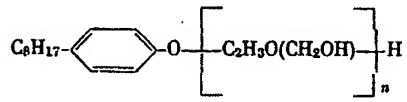
Lauryl alcohol oxyethylated with 12 molecules of ethylene oxide	5g
Lauric diethanolamide	2g
Water, q.s.p	100g

The pH of the solution is 6.
10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is then vigorously massage and rinsed copiously with water. A second application of 8 to 10 cm3 of the

product follows and produces an abundant foam. The hair is again rinsed, dried, and is left shiny, soft, and nonelectric.

EXAMPLE 23

An aqueous solution having the following composition is prepared:

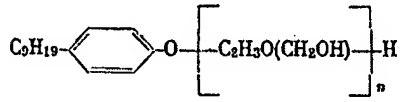


	7 g
(in which n has a statistical average value of 6)	
Lauryl alcohol oxyethylated with 12 molecules of ethylene oxide	5 g.
Lauric diethanolamide	2 g.
Water, q.s.p.	100 g.

IThe pH of the solution is 6.
10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 24

An aqueous solution having the following composition is prepared:

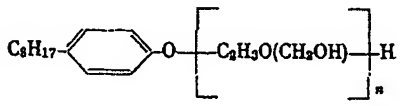


	8 g
(in which n has a statistical average value of 6)	
Product sold under the Trademark "Cetavlon"	3g
Lactic acid, q.s.p	100g
Water, q.s.p.	100g

10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam, which is then rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 25

An aqueous solution having the following composition is prepared:



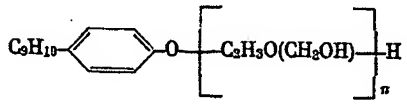
	8 g
(in which n has a statistical average value of 6)	
Product sold under the Trademark "Cetavlon"	3g
Lactic acid q.s.p	pH 3
Water, q.s.p.	100g

10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm' of the product produces an abundant foam, which is then rinsed away.

Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 26

An aqueous solution having the following composition is prepared:



4 g

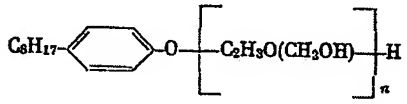
(in which n has a statistical average value of 6)

Product sold under the Trademark "Cetavlon"	3 g
Lauryl alcohol oxyethylated with 12 molecules of ethylene oxide	
Lactic acid, q.s.p	pH5
Water, q.s.p.	100g

10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 27

An aqueous solution having the following composition is prepared:



4 g

(in which n has a statistical average value of 6)

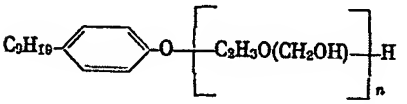
Product sold under the Trademark "Cetavlon"	3g
Lauryl alcohol oxyethylated with 12 molecules of ethylene oxide	4g
Lactic acid,q.s.p	pH 5
Water, q.s.p.	100g

10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.

Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 28

An aqueous solution having the following composition is prepared:



5g

(in which n has a statistical average value of 6)

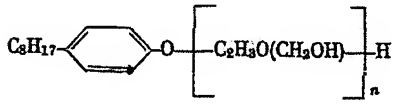
Technical ammonium lauryl sulphate (100%)	5g
Lauric diethanolamide	1g
Water, q.s.p.	100g

The pH of the solution is 8.

10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 29

An aqueous solution having the following composition is prepared:



5g

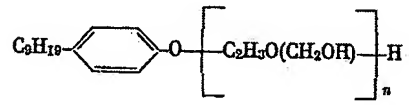
(in which n has a statistical average value of 6)

Technical ammonium lauryl sulphate (100%)	5g
Lauric diethanolamide	1g
Water, q.s.p.	100g

The pH of the solution is 8.
10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 30

A solution having the following composition is prepared:



5g

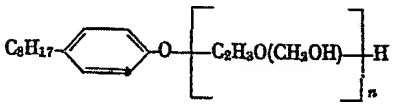
(in which n has a statistical average value of 6)

Technical triethanolamine lauryl sulphate (100%)	6g
Carboxymethylcellulose	0.3g
Water, q.s.p.	100g

The pH of the solution is 7.
10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

EXAMPLE 31

A solution having the following composition is prepared:



5g

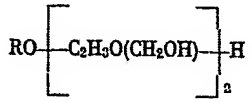
(in which n has a statistical average value of 6)

Technical triethanolamine lauryl sulphate (100%)	6g
Carboxymethylcellulose	0.3g
Water, q.s.p.	100g

The pH of the solution is 7.
10 cm3 of this solution are applied to a head of hair which has first been dampened. The head is massaged vigorously to emulsify all the particles of dirt and rinsed copiously with water. A second application of 8 to 10 cm3 of the product produces an abundant foam which is rinsed away.
Hair washed in this way is left lustrous, soft, and non-electric.

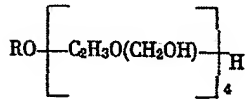
EXAMPLE 32

The following composition is prepared:



35g

in which R is an oleyl radical ;

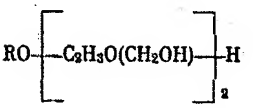


20g

in which R is an oleyl radical
2-butoxy-ethanol, 15g;
Ethylene diamine tetraacetic acid, 0.3g;
Sodium bisulphite, 0,6g;
Para-toluylene diamine, 0.4cm^3;
Meta-diaminoanisole, 0.04g;
Resorcinol, 0.2g;
Meta-aminophenol, 0.10g;
Para-aminophenol, 0,25g,
Water, q.s.p., 100g.
This solution is mixed with its own volume of hydrogen peroxide at 20 volumes, ducing a beautiful transparent gel. This gel is applied to very grey hair for 25 minutes. After shampooing, a chestnut shade results.
When dried, the hair is especially soft and lustrous.

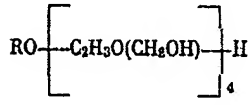
EXAMPLE 33

The followin g composition is prepared:



25g

in which R is an oleyl radical ;



15g

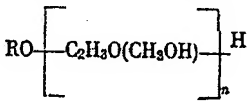
in which R is an oleyl radical
Olein, 6g;
50% dicetyldimethyl ammonium chloride in isopropanol, 12g;
2-butoxy-ethanol, 10g;
Ethyl alcohol, 8g;
20% ammonia, 11 cm3;
Para-toluylene diamine, 0.4g;
Resorcinol, 0.15g;
Meta-aminophenol, 0.1g;

Para-aminophenol, 0.7g;
Methyl para-aminophenol, 0.3g;
Meta-diaminoanisole, 0.02g
Ethylene diamine tetraacetic acid, 3g;
Sodium bisulphite, 0.6g;
Water, q.s.p., 100g.
This solution is mixed with its own volume of hydrogen peroxide at 20 volumes. When applied to very grey hair for 25 to 30 minutes, the result, after shampooing, is a golden chestnut shade.
The hair, after treatment, is very soft and easy to manage.

II is naturally that the examples above described have no restrictive character and can give place to any desirable modification without going out for it of the frame of the invention; particularly hydrophilic compounds according to the invention can be increased, in a known way, by ulterior reaction with one or several molecules of ethylene oxide. Also, compounds according to the invention can be transformed, in a known way, into surface-active ionic compounds, by introduction of an ionic, sulphate, carboxylate or phosphate, group for example.

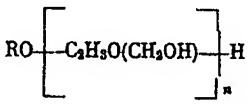
Claims:
The present invention relates to:

1. A process for manufacturing mixtures new surface-active nonionic compounds of the formula:



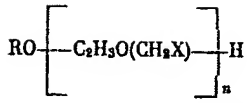
in which R is a lipophilic chain which can be a linear or branched alkyle radical, saturated or not comprising a chain of 8 to 22 carbon atoms or alkylaryl radical with a linear or branched alkyle chain, and n is a number lower or equal to 10, essentially characterized by this fact that one makes act by reaction polyaddition on a hydroxylated compound of formula ROH, R having the meaning indicated above, n molecules of glycerol epihalohydrin and that we carry out hydroxylation of the product obtained by means of salt of carboxylic acid, this process can comprise the following characters, alone or combined:
a. polyaddition phase is carried out in the presence of acid catalyst such as boron trifluoride, satanic chloride or antimony pentachloride ;
b. polyaddition phase is carried out in a temperature comprised between 25°C and 160 °C and rather between 60 and 120 °C;
c. hydroxylation reaction is carried out in a solvent such as propylene glycol, dipropylene glycol, diethylene glycol and its ether, ethylene glycol, hexylene glycol or 2-butoxyethanol;
d. hydroxylation reaction is carried out in temperature of about 150°C to 200°C, a temperature between 180°C and 190°C being preferred;
e. during hydroxylation reaction, reducing agents are added such as sodium hypophosphite or alkali metal borohydrides;
f. The alkaline metal salt of carboxylic acid which is used in this hydroxylation step may be an alkali metal acetate;
g. the alkali metal acetate, used in stoichiometric proportions, or slightly in excess thereof (10 to 15% at most) with respect to the halogenated compounds involved in the reaction;
*h.*the compounds of formula (I) are obtained in a mixture of compounds corresponding to various values of n, these various values being statistically distributed around a mean value;

2. As new industrial product, surface-active nonionic compounds having the formula:



in which R and n have the signification according to claim 1.

3. As new industrial product, compounds having the formula:



in which R with the significance indicated in claim 1, X represents a halogen, for example chlorine or bromine and n is a number higher than 2 and less than or equal to 10.

4. As new industrial product, a cosmetic composition wherein it comprises at least one compound according to claim 2, this composition can comprise the following characters, alone or combined:

a. it is used as shampoo for hair;

b. it is used as carriers for hair dyes;

c. it is used as cleansing lotion;

d. compounds according to claim 2 are in aqueous solution in proportion from 1 % to 25 %;

e. compounds according to claim 2 are cream or gel form;

f. compounds according to claim 2 are in the form of aerosol spray;

g. composition contains some products or conventional additives such as thickening agents or surface-active agents, other than those mentioned in claim 2.